

6.0 SITE 6 – DEFENSE REUTILIZATION AND MARKETING OFFICE (OU 2)

This five-year review of Site 6 - DRMO is required by statute because hazardous substances, pollutants, or contaminants remain on site that do not allow for unlimited use or unrestricted exposure. A time-critical removal action (TCRA) was completed at the DRMO in January 1995. The TCRA focused on the removal of soil contaminated with lead, PAHs, and PCBs from the northern half of the DRMO. After completion of the removal activities, the area was backfilled with clean borrow material and the area was capped with a geosynthetic clay/geotextile layers and overlaid by gravel/asphalt. An interim ROD addressing the contaminated soil and groundwater and the impacts on the surface water of the Thames River was completed in March 1998.

6.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 6 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
DRMO used as a landfill and waste burning area.	1950 to 1969
Final IAS completed.	March 1983
Phase I RI completed.	August 1992
Draft FFS completed.	March 1994
TCRA completed.	January 1995
Action Memorandum completed.	March 1995
Final Report for IRA completed.	September 1995
Phase II RI completed.	March 1997
Proposed Plan issued.	September 1997
Public Meeting	September 1997
Groundwater Monitoring Plan finalized.	February 1998
Final Interim ROD signed.	March 1998
Groundwater Monitoring Program initiated.	April 1998
Year 1 Annual Groundwater Monitoring Report completed.	November 1999
Year 2 Annual Groundwater Monitoring Report completed.	October 2000

6.2 BACKGROUND

The DRMO (Site 6) is located adjacent to the Thames River in the northwestern section of NSB-NLON. The site's location relative to other IR sites is located on Figure 1-2. The site is located between a bedrock outcrop that runs roughly parallel to the Providence and Worcester Railroad to the east and the Thames River to the west. The site covers approximately 3 acres of land gently sloping toward the

Thames River. A majority of the site is paved with an asphalt layer, and the site features buildings, a weighing scale, and miscellaneous storage piles. Figure 6-1 displays the general site arrangement. Currently, the DRMO is used as a storage and collection facility for items such as computers, file cabinets, and other office equipment to be sold during auctions and sales held periodically during the year.

From 1950 to 1969, the DRMO was used as a landfill and waste-burning area. Non-salvageable waste items including construction materials and combustible scrap were burned along the Thames River shoreline, and the residue was pushed to the shoreline and partially covered.

During the review of archived aerial photographs of the DRMO area, the 1934 photographs show fill in the southern portion of the site. Fill for bulkheads and docks south of the DRMO did not exist at that time. Aerial photographs from 1951 show the land in its present configuration, except for the northwestern portion, which was not filled at that time.

During a site inspection on September 30, 1988, it was noted that metal and wood products were stored throughout most of the site. Buildings 355 and Building 479 are located in the southern, paved portion of the site and are primarily used for storage. A large scrap yard is located north of Building 479. Building 491, located in the northern, unpaved portion of the site was used to store miscellaneous items including batteries. Metal scrap bailing operations are performed adjacent to Building 491 on a gravel surface. Building 491 formerly housed a battery-acid-handling facility. Submarine batteries were previously stored in the southeastern portion of the site, adjacent to the railroad tracks. No evidence of leaks was observed. An in-ground rubber-lined tank and associated pumping facilities were noted on the plans. DRMO personnel indicated that the tank actually may have been installed directly adjacent to the building to the east.

A Conforming Storage Facility Report (GZA, 1988) for the DRMO was prepared in 1988 as a requirement for the siting of a hazardous waste storage facility in the northern portion of the DRMO. The study performed for the report indicated the presence of PCBs and other contaminants at the DRMO.

A two-phase RI was conducted to determine the nature and extent of contamination at the DRMO. The Phase I RI field investigation was conducted from 1990 to 1992 (Atlantic, 1992). The Phase I RI of the DRMO consisted of test borings, monitoring well installation, and soil, surface water, and groundwater sampling. Some evidence of the former landfill was encountered during the drilling, including wood fragments, brick, and metal but predominately earth fill material. The depth of the fill varied from 0 to 8 feet. Human health risks were determined for Navy workers due to exposure to PCBs, PAHs, and beryllium in the surface soil and due to elevated lead levels at the northern portion of the site. In addition, groundwater

quality exceeded drinking water standards; however, no drinking water wells were within the affected area, nor could they be due to the proximity of the brackish Thames River. Risks to fish in the Thames River estuary were determined to be low from contaminants contained in the groundwater discharged from the site. It was recommended that the site proceed to the FS phase. It was also recommended that specific health and safety provisions be made for all subgrade construction projects at the site. The risks were primarily related to incidental oral and dermal exposure of site workers to contaminated surface soils (Atlantic, 1992).

A field investigation in support of the draft FFS was performed at the DRMO in October 1993 to better define the extent of soil contamination. Surface and subsurface soil samples were collected from 17 borings, and one of the borings was completed as a monitoring well. The soil borings indicated the depth of fill ranged from approximately 1.5 to 20 feet. Fill material consisted of wood, glass, and metal scrap in a predominately sand and gravel matrix (Atlantic, 1994b).

A TCRA was completed in January 1995. Initial activities at the site included pre-excavation sampling and analysis focused on better defining the limits of PCB-contaminated soils in the areas to be excavated. Confirmatory soil sampling and analysis were conducted on the sidewalls of the excavations. Human health and ecological risks, associated with the soil left in place after the removal action, were evaluated during the Phase II RI.

The Phase II RI field investigation was conducted from 1993 to 1995 (B&RE, 1997a). The Phase II RI of the DRMO consisted of the installation of five new monitoring wells, two rounds of groundwater sampling, and subsurface soil sampling. The Phase II RI concluded that the majority of contaminated soil had been removed, the groundwater was not significantly affected, and there were relatively low human health and ecological risks associated with the DRMO. The Phase II RI recommended that no further action be conducted at the DRMO for soil and groundwater and that groundwater monitoring be conducted to verify that significant contamination is not leaching to the groundwater.

6.3 REMEDIAL ACTIONS

A TCRA was completed in January 1995 to remove soil containing elevated concentrations of lead, PAHs, and PCBs from the northern half of the DRMO. Additional soil and groundwater sampling was conducted during the Phase II RI after the TCRA. Based on the results of the Phase II RI, NFA was recommended for the DRMO. An Interim ROD (Navy, 1998a) was signed for the soil and groundwater OUs at Site 6 that presented institutional controls and monitoring as the selected remedial action. By implementing institutional controls and maintenance of the existing asphalt and geosynthetic clay liner (GCL), the Navy planned to protect potential human receptors from adverse health effects of exposure to

the underlying contaminants. By implementing monitoring, the Navy also planned to verify that contaminants in the soil are not migrating to the Thames River through the groundwater.

6.3.1 Remedy Selection

6.3.1.1 TCRA

Several previous investigations at the DRMO confirmed that a release of contaminants into the environment had occurred and the contamination remained at the site. Moderate concentrations of VOCs and pesticides were found. Higher elevations of PCBs, SVOCs, and heavy metals were also found.

Target clean-up levels were developed in the Action Memorandum (Atlantic, 1995b) to ensure the following:

- There is limited opportunity for individuals to encounter hot spots where contaminants may be present at elevated levels.
- Overall human health risks associated with activities at the DRMO are below acceptable levels.

The proposed TCRA at the DRMO consisted of excavation and off-site disposal of contaminated soil hot spots and an in-ground spent acid tank at a RCRA landfill, followed by the placement of an impervious cap throughout all unpaved areas of the site. Soil Preliminary Remediation Goals (PRGs) used to identify hot spots included:

- Lead = 500 mg/kg.
- PCBs = 10 mg/kg.
- Carcinogenic polycyclic aromatic hydrocarbons (CPAHs) = 100 mg/kg.

At the DRMO, accessible soil was determined to be soil from the ground surface to a depth of 3 feet. After the tank and hot spot removals were completed, the site was to be covered by an impervious bentonite geocomposite liner between layers of nonwoven geotextile and covered with 12 inches of compacted crushed stone. Access to the site would continue to be restricted via perimeter fencing and security procedures (Atlantic, 1995b).

6.3.1.2 Post TCRA

An FS for the DRMO was completed in response to the Phase II RI. The FS evaluated several remedial alternatives for the DRMO. The recommended interim remedy of institutional controls and monitoring was

presented in the PRAP (Navy, 1997c) and was formally selected in the ROD for the soil and groundwater OU that was signed in March 1998.

Based on preliminary information relating to types of contaminants, environmental media of concern, and potential exposure pathways, RAOs were developed to aid in the development of alternatives. These RAOs were developed to mitigate existing and future potential threats to public health and the environment:

- Prevent unacceptable risks to human receptors from exposure to contaminated soil under either a current industrial or future (although unlikely) residential land use scenario through either institutional controls and/or removal/treatment/disposal.
- Prevent unacceptable risk to ecological receptors in the Thames River from potential migration of contaminants.

A remedy was selected for the DRMO to meet the RAOs. The selected remedy, as defined in the ROD, consisted of the following components:

- Institutional controls that include maintenance of the existing cap, limitations on site access, and restrictions on land use. Maintenance of the existing asphalt and GCL cap was to consist of regular inspections to assess the integrity and periodic repair and replacement of the asphalt layer as needed. Limitations on site access were to consist of maintaining the existing chain-link fence that surrounds the DRMO and posting signs to warn potential trespassers that a health hazard is present. Land use restrictions for the DRMO were to limit activities (including, but not limited to, excavation or drilling), to prohibit residential use of property, and to restrict excessive vehicular use or any other activity that could compromise the integrity of the existing cover system.
- Groundwater monitoring to be performed in accordance with the groundwater monitoring plan for the DRMO site (B&RE, 1997e). Groundwater samples were to be analyzed to evaluate whether contamination from the DRMO is migrating to the Thames River and causing an adverse ecological effect. After baseline conditions were established, the monitoring program might be revised based on the analytical data collected from the previous sampling events. After sufficient monitoring data were collected, such data would be evaluated to determine the need for additional remedial action at the site or the need to modify additional monitoring.
- A site review was to be conducted every 5 years for 30 years to evaluate the site status and determine whether further action is necessary.

6.3.2 Remedy Implementation

6.3.2.1 TCRA

OHM Remediation Services, the Navy's RAC, completed a TCRA at the DRMO in January 1995 (OHM, 1995a). During the TCRA, soils containing concentrations of lead, PAHs, and PCBs in excess of the PRGs were excavated and removed from the northern half of the DRMO. The PRGs used for soil screening of lead, PCBs, and CPAHs were 500 mg/kg, 10 mg/kg, and 100 mg/kg, respectively. Excavation extended to a maximum depth of approximately 3 feet below the ground surface or to the water table. Approximately 4,700 tons of soil were excavated and transported to a RCRA landfill located in Grand View, Idaho. Residual contamination above the PRGs remained in the soil after excavation was completed because the excavation was limited to 3 feet by the shallow water table and because of exceedances of the allotted time for the project (B&RE, 1997a). Additionally, a steel-walled, spent-acid-storage tank was excavated, cut into manageable pieces, and disposed off site with the contaminated soil.

The excavated area was backfilled with clean borrow material from an off-site location. A cap consisting of woven geotextile fabric, a GCL, and nonwoven geotextile fabric was installed. Approximately 12 inches of crushed stone and 3 inches of asphalt were placed over the clay/geotextile cover. This cap does not meet Resource Conservation and Recovery Act (RCRA) Title C requirements. The remaining (unpaved) portion of the DRMO was also upgraded via placement of an asphalt layer. The total cost of the TCRA was approximately \$2,500,000.

6.3.2.2 Post TCRA

Groundwater monitoring for the DRMO began in April 1998 and results were included in the Interim Groundwater Monitoring Report (B&RE, 1998d). Three new monitoring wells (6MW9S, 6MW10S, and 6MW10D) were drilled and installed in accordance with the DRMO Groundwater Monitoring Plan (B&RE, 1998a) during the field investigation activities. Further details of the long-term monitoring and O&M are discussed below in Section 6.3.3.

To meet the land use control requirements in the ROD, the Navy has prepared and implemented an instruction [i.e. SOPA (ADMIN) New London Instruction 5090.18 (Navy, 2000b)] to restrict use at IR sites at NSB-NLON. The instruction defines the Navy's policy regarding ground surface disturbance of soils or any subsurface disturbance of soils and/or groundwater in IR sites.

Access to the site is restricted. A security fence prevents on-base access from Amberjack Road. Building 397 serves as the DRMO office, where personnel must receive permission for access to the area. A sign located at the front gate warns personnel not to dig at the DRMO. North of the DRMO, another fence deters trespassers from coming onto NSB-NLON. To the east, the site is bounded by an active railroad line, and to the west it is bounded by the Thames River. A fence is also located between the railroad line and the DRMO.

6.3.3 System Operations/Operation and Maintenance

The Navy implemented a monitoring program at the DRMO in April 1998. The results of the program are being used to verify the effectiveness of the cap installed as part of the TCRA to reduce precipitation infiltration and leaching of contaminants and to confirm that contamination is not migrating through soil into the groundwater and ultimately discharging to the Thames River. Quarterly sampling has been completed at the site in accordance with the groundwater monitoring plan for the DRMO (B&RE, 1998a). Eleven rounds of sampling have been completed as of May 2001. Two annual reports (TtNUS, 1999h and TtNUS, 2000d) and 10 interim quarterly reports have been prepared to document the results of the monitoring program. These reports have been submitted to the USEPA and CTDEP for review and comment. The annual reports include a thorough evaluation of the two years of data collected under the program, and the quarterly reports provide a brief screening-level assessment of the quarterly data. The results of the program are discussed in Section 6.4.2.

Costs associated with groundwater monitoring were estimated in the FS (B&RE, 1997f) at \$84,000 per year for 30 years. Assumptions included a total of 10 groundwater samples each quarter plus one duplicate and one blank sample for analysis, analysis costs of approximately \$1,000 per sample [Target Compound List (TCL) VOCs, SVOCs, pesticides/PCBs, and Target Analyte List (TAL) metals], and a written report after each sampling period. The actual cost for 1 year of quarterly groundwater monitoring at the DRMO in accordance with the final groundwater monitoring plan is approximately \$120,000. This cost includes the costs associated with fieldwork, analysis, data validation, and reporting. Costs associated with preparing the groundwater monitoring plan and installing the three additional groundwater monitoring wells are not included in this estimate.

The Navy has not prepared or implemented an O&M plan for the DRMO to date. A cost estimate for annual O&M has not been prepared, but it will be during preparation of the O&M plan. Actual O&M costs will be provided in the Second Five-Year Review Report.

6.4 FIVE-YEAR REVIEW FINDINGS

6.4.1 Site Inspection

A site inspection was conducted at Site 6 on April 10, 2001. Weather conditions during the inspection were favorable, with mild temperatures and no precipitation. Representatives from the Navy, CTDEP, and TtNUS participated in the inspection. Photographs taken of the site during the site inspection are provided in Appendix A. A site inspection checklist was completed during the inspection. The completed checklist is provided in Appendix B.

The site inspection included visual observations of the current condition of the asphalt and GCL cap and monitoring wells at Site 6. It was found during the site inspection that the land use for the site has remained unchanged since the TCRA was completed and groundwater monitoring was initiated. The Navy has continued to use the area as a storage and collection facility for items such as computers, file cabinets, and other office equipment to be sold during auctions and sales held periodically during the year. In general, the site inspection found that the cap system was working as intended. In addition, access restrictions were in place and a placard was visible at the main entrance to Site 6 warning personnel not to dig at the site. However, a few items were identified during the site inspection that, if not addressed, could negatively affect the long-term performance of the cap system. These items are noted in the site inspection checklist provided in Appendix B. The items are summarized below:

- An area of possible settlement was discovered in the asphalt at the southwestern corner of Building 491, approximately 50 to 60 feet from the building (see Figure 6-1).
- Monitoring wells and dedicated sampling equipment have not been maintained and are in need of maintenance and/or repair.

6.4.2 Document and Analytical Data Review

6.4.2.1 Document Review

The documents that were reviewed for this five-year review are listed below, and key information obtained from the documents is summarized in the following paragraphs.

- Action Memorandum
- Feasibility Study
- Interim ROD, Soil and Groundwater OU, DRMO
- New London Instruction 5090.18

- Groundwater Monitoring Plan for the DRMO
- Interim Groundwater Monitoring Report for the DRMO

A review of the Action Memorandum provided the decision process used to select the TCRA. The PRGs for the TCRA were also included in the Action Memorandum.

A review of the FS provided a summary of the remedial alternatives evaluated for the DRMO and the cost estimate for the groundwater monitoring plan.

A review of the ROD for the DRMO provided the RAOs, ARARs, and a description of the selected remedy for the site.

A review of New London Instruction 5090.18 provided the approach to be used for land use controls at NSB-NLON. The instruction details the restrictions on ground surface disturbance of soils or any subsurface disturbance of soils and/or groundwater at IR sites at NSB-NLON.

A review of the final Groundwater Monitoring Plan for the DRMO provided the monitoring well network to be used for the long-term monitoring program. The plan also details the analytical program, monitoring criteria, and data evaluation approach.

A review of the Interim Groundwater Monitoring Report provided a discussion of monitoring well installation of the three new wells to be used for the long-term monitoring program.

6.4.2.2 Data Review

The Navy implemented a monitoring program at the DRMO in April 1998. The results of the program are being used to verify the effectiveness of the TCRA and cap and to determine whether a final ROD can be prepared for the site. A summary of the conclusions and recommendations from the Year 1 and Year 2 Annual Reports is provided below. Table 6-1 summarizes the groundwater analytical data that were collected during Rounds 1 through 4 of the program. Table 6-2 summarizes the groundwater analytical data that were collected during Rounds 5 through 8 of the program. The chemicals provided in the tables are the COCs identified in the GMP. The criteria used to screen the data are provided in the notes at the bottom of the tables. The primary screening criteria used for data evaluation are the site-specific SWPC using a site-specific dilution factor of 100, as well as the Volatilization Criteria promulgated by the CTDEP. The secondary criteria are the Federal AWQCs and the Connecticut WQSS [i.e., aquatic life criteria developed for chronic (long-term) exposure of aquatic receptors in saltwater and human health criteria for consumption of organisms]. The human health criteria were included because recreation fishing may occur in the Thames River. There were no exceedances of primary monitoring criteria for the

data collected during Year 1 or Year 2. Figure 6-2 shows the exceedances of secondary monitoring criteria in groundwater for Rounds 1 through 4, and Figure 6-3 shows the exceedances of secondary monitoring criteria in groundwater for Rounds 5 through 8.

Year 1 Annual Report

The results obtained for the initial rounds of groundwater monitoring for VOCs, SVOCs, and inorganic compounds indicated no exceedances of any primary criteria (TtNUS, 1999h). Bis(2-ethylhexyl)phthalate (BEHP) exceeded the secondary monitoring criteria in several samples; however, the results were similar to positive detections noted in samples collected from upgradient monitoring wells. Several PAHs detected in groundwater samples were also noted to exceed secondary monitoring criteria. Arsenic, copper, silver, and zinc were detected in groundwater samples in excess of the secondary monitoring criteria.

The average concentrations of arsenic for each round in the downgradient wells were also compared to the site-specific and Connecticut SWPC. Only the average total arsenic concentration for Round 1 exceeded the CTDEP SWPC. None of the concentrations exceeded the site-specific SWPC.

The analytical results for the first year of groundwater monitoring indicate no exceedances of the primary criteria, although several contaminants were detected in excess of the secondary monitoring criteria. Because of the various exceedances of secondary monitoring criteria, it was recommended that groundwater monitoring be continued through year two to further evaluate these chemical concentrations. It was also recommended that the Navy, EPA, and CTDEP consider the following:

- Reduce the number of analytical parameters at the completion of Year 2 of the monitoring program.
- Reduce the sampling frequency after the completion of Year 2 of the monitoring program.
- Continue to maintain the monitoring wells in the monitoring program.
- Discuss the endpoint for the groundwater monitoring if current trends continue.

Year 2 Annual Report

The Year 2 Annual Groundwater Monitoring Report for DRMO (TtNUS, 2000d) summarized the groundwater analytical data collected from the monitoring well network during Rounds 5 through 8. The results obtained for the second year of groundwater monitoring for VOCs, SVOCs, and inorganics indicated no exceedances of the primary criteria. Concentrations of BEHP detected in several samples exceeded the secondary monitoring criteria; however, it is likely that the low concentrations detected may be attributable to the laboratory as no clear pattern has been exhibited in any monitoring well. Arsenic,

copper, lead, and zinc were detected in groundwater samples in excess of the secondary monitoring criteria.

A statistical evaluation of the data indicated that upgradient and downgradient concentrations of both organic and inorganic COCs were found to be similar except for total barium. The average barium concentrations for the downgradient wells for each round were plotted as a function of round to determine the trend of the concentrations. The regression line fit to the average barium concentrations showed a slight increasing trend, which correlated with the results of the statistical evaluation. It was noted however that "no change" was also within the 95 percent confidence limits for the regression analysis. Therefore, the true trend of the average barium concentrations in the downgradient wells was uncertain. No primary or secondary screening criteria were available for comparison with the average barium concentrations to determine if the concentrations were significant.

The analytical results for the second year of groundwater monitoring indicated no exceedances of the primary criteria, although several contaminants were detected in excess of the secondary monitoring criteria. Because of the various exceedances of secondary monitoring criteria, it was recommended that groundwater monitoring be continued through year three to further evaluate these chemical concentrations. It was also recommended that the Navy, EPA, and CTDEP consider the following:

- Eliminate VOCs from the analytical suite.
- Reduce the sampling frequency for SVOCs from quarterly to biannual.
- Continue to maintain the monitoring wells in the monitoring program.
- Discuss the endpoint for the groundwater monitoring if current trends continue.

Year 3

The Navy is currently completing the third year of groundwater monitoring at Site 6 and the results will be available in the Fall of 2001. The collective results of the monitoring program (Years 1 through 3) will be evaluated to determine contaminant trends. If the trends show sustained compliance with monitoring criteria/ARARs, the Navy will recommend preparation of a final ROD for Site 6 and modifications to the groundwater monitoring program. The final recommendations for Site 6 will be provided in the Year 3 Annual Report.

6.4.3 ARAR and Site-Specific Action Level Changes

The remedial action implemented for soil and groundwater at the DRMO includes monitoring of groundwater and institutional controls. No new human health ARARs have been promulgated that would call into question the protectiveness of the remedy for soil. ARARs and TBCs were reviewed to

determine whether there have been changes since the IROD and Groundwater Monitoring Plan were issued. Listings of chemical-specific, location-specific, and action-specific ARARs, advisories and guidance (TBCs), which were considered in the IROD are listed on Tables 6-4, 6-5, and 6-6, respectively. With the exception of monitoring criteria, the ARARs were addressed during monitoring well installation or selection of the remedy and are no longer applicable. Changes associated with monitoring are addressed in the response to Question 2 of Section 6.5, Assessment.

The presence of the cap effectively eliminated direct contact with contaminated soil at the site, and the soil at the DRMO represents little potential risk to ecological receptors. If the cap would be destroyed in the future due to artificial or natural forces, then there could be a potential risk to ecological receptors.

6.5 ASSESSMENT

The following conclusions support the determination that the remedy at Site 6 is protective of human health and the environment.

Question 1. Is the remedy functioning as intended by the decision documents?

- ***HASP/Contingency Plan:*** A groundwater monitoring program is being implemented at the DRMO. The results are being used to verify the effectiveness of the cap. The data do not indicate any significant contaminant migration concerns. Should groundwater data indicate the need to evaluate additional remedial actions at some point in the future, the Navy will perform the evaluation at that time.
- ***Implementation of Institutional Controls and Other Measures:*** Institutional controls associated with Site 6 are discussed in the New London Instruction 5090.18. The area is secured with fencing and signs are posted warning personnel not to dig in the area.
- ***Remedial Action Performance:*** A TCRA was completed and a cap was installed at the DRMO. The cap is currently effective in limiting direct exposure to remaining contaminated soil and minimizing infiltration and contaminant migration from the site. A groundwater monitoring program is being implemented to evaluate the performance of the cap regarding minimizing contaminant migration to the Thames River. The results from two years of monitoring indicate that no significant contaminant migration is occurring from the DRMO. A third year of monitoring is currently being conducted. Proper O&M is necessary to maintain proper long-term performance of the cap.

- **System Operations/O&M:** No O&M has been conducted at the site since the TCRA was completed in 1995. The items noted in Section 6.4.1 should be addressed. An O&M plan should be developed and implemented.
- **Cost of Operations/O&M:** There have been no O&M costs associated with the site since the TCRA was completed in 1995. Annual costs for groundwater monitoring have been approximately \$120,000. This cost includes field work, analysis, data validation, and reporting.
- **Opportunities for Optimization:** When appropriate, the monitoring program can be optimized by reducing the frequency of sampling and the analytical parameter list.
- **Early Indicators of Potential Remedy Failure:** No significant indications of remedy failure were noted during the inspection. However, a small area of possible settlement was observed during the site inspection.

Question 2. Are the assumptions used at the time of the remedy selection still valid?

- **Changes in Standards and To Be Considereds:** The monitoring criteria for the DRMO groundwater monitoring program include the Connecticut SWPC. As discussed in Section 1.4, the SWPC were updated in April, 1999 but the SWPC for the chemicals of concern at the DRMO have not changed. The secondary monitoring criteria for the DRMO are the lower of the Federal Ambient Water Quality Criteria (AWQC) and the Connecticut Water Quality Standards (WQS). The Federal AWQC were last updated in April, 1999 and the Connecticut WQS were last updated in April 1997. A comparison of the old and new secondary monitoring criteria is presented in Table 6-6. The changes in the AWQCs and WQSs do not impact the protectiveness of the remedy.
- **Changes in Exposure Pathways:** Because a cap was installed at the DRMO, the direct exposure pathway for human or ecological receptors to come into contact with contaminated soil related to the DRMO was eliminated. This change was planned as part of the TCRA. There were no changes in the site conditions that affect exposure pathways (i.e., there are no current or planned changes in land use and no new contaminants, sources, or routes of exposure identified).
- **Changes in Toxicity and Other Contaminant Characteristics:** Toxicity and other factors for contaminants of concern have not changed.
- **Changes in Risk Assessment Methodologies:** As discussed in Section 1.4, there have been no major changes in human health risk assessment methodologies since the signing of the ROD. In

addition, as presented in Section 1.4, no significant changes have occurred in the ecological risk assessment methodology since the ERA was conducted.

Question 3. Has any other information come to light that could call into question the protectiveness of the remedy?

No additional information has been identified that would call into question the protectiveness of the remedy.

6.6 DEFICIENCIES

The only deficiency discovered during the five-year review for the DRMO was the lack of an O&M plan. The O&M deficiencies that were noted during the inspection are summarized in Table 6-7.

6.7 RECOMMENDATIONS AND REQUIRED ACTIONS

Based on the results of the site inspection and review, the following recommendations and actions are required for Site 6.

- Using the results of three years of groundwater monitoring, determine if a final ROD for all media at the DRMO can be prepared.
- Continue the groundwater monitoring program, but optimize the sampling frequency, monitoring well network, and analytical parameter list.
- Prepare an O&M plan for the DRMO and address the items noted in Table 6-7 during implementation of the plan.
- Continue enforcement of New London Instruction 5090.18.

6.8 PROTECTIVENESS STATEMENT

The remedy at the DRMO is currently protective of human health and the environment. A majority of the original source was removed during a TCRA and the remaining source material is contained. The cap system minimizes infiltration and subsequent contaminant migration and prevents direct contact with soil. A groundwater monitoring program is being implemented at the site and the results of the program indicate that the removal action and cap are performing as planned. Proper implementation of land use controls and O&M will maintain the effectiveness of the remedy into the future.

TABLE 6-1

ROUNDS 1 THROUGH 4 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
PAGE 1 OF 10

Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	6MW1S ROUND 1 4/21/98	6MW1S ROUND 2 8/3/98	6MW1S ROUND 3 1/28/99	6MW1S ROUND 4 4/23/99
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	0.6 J	1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 U	0.05 U	0.05 UJ
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 U	0.05 UR	0.05 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.1 U	0.047 U	0.1 UJ	0.1 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.047 U	0.05 UJ	0.05 U
BENZOIC ACID	NA	NA	12 UR	19 UJ		10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	5 U	9 U	130	7
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.1 U	0.12 U	0.1 U	0.1 UJ
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.1 U	0.23 U	0.1 UJ	0.1 U
NAPHTHALENE	NA	NA	0.1 U	1.2 U	0.1 U	0.5 U
PHENANTHRENE	0.77	NA	0.05 U	0.093 U	0.05 U	0.05 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.05 U	0.23 U	0.05 U	0.05 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.01 U	0.019 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.005 U	0.010 U	0.01 U	0.01 U
HEXACHLOROBIPHENYL	NA	NA				0.02 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	1.8 U/1.8 U	3.7 UJ/3.7 UJ	1.9 U/1.9 U	2.1 U/2.1 U
BARIUM	NA	NA	4.0/81.1	8.3 U/8.3 U	5.2 U/5.1 U	9.9/11.2
CADMIUM	60	NA	0.19 U/0.19 U	2.3 U/2.3 U	2.3 UJ/2.6 U	1.9 U/1.9 U
CHROMIUM	1,100	50 ⁽²⁾	0.79 U/0.74 U	3.4 U/8.8 U	3.4 U/3.4 U	4.3 U/4.3 U
COPPER	480	2.4 ⁽²⁾	1.3/0.93 J	1.9 U/2.5 U	1.4 UJ/1.4 UJ	1.6 U/1.6 U
LEAD	130	8.1 ⁽²⁾	0.91 U/0.91 U	2.6 UJ/2.6 UJ	1.3 U/1.3 U	1.1 U/1.1 U
SILVER	120	1.9 ⁽²⁾	0.99 U/2.0	2.7 U/2.7 U	2.7 U/3.1 U	2.5 U/2.5 U
ZINC	1,230	81 ⁽²⁾	13.0 U/66.9	11.2 U/11.1 U	10.0 U/15.2 U	9.6 U/10.3 U

TABLE 6-1

ROUNDS 1 THROUGH 4 GROUNDWATER ANALYTICAL RESULTS SUMMARY
 ANNUAL GROUNDWATER MONITORING REPORT
 DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	6MW2D ROUND 1 4/21/98	6MW2D ROUND 2 7/31/98	6MW2D ROUND 3 1/25/99	6MW2D ROUND 4 4/21/99
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 UJ	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 U	0.05 U	0.05 UJ
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 U	0.05 UR	0.05 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.1 U	0.038 J	0.1 UJ	0.1 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.047 U	0.05 UJ	0.05 U
BENZOIC ACID	NA	NA	12 U	19 UJ		10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	31	5 J	3 J	8
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.1 U	0.12 U	0.1 U	0.1 UJ
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.1 U	0.24 U	0.1 U	0.1 U
NAPHTHALENE	NA	NA	0.1 U	1.2 U	0.1 U	0.5 U
PHENANTHRENE	0.77	NA	0.05 U	0.094 U	0.05 U	0.05 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.05 U	0.24 U	0.05 U	0.05 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.01 U	0.019 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.005 U	0.009 U	0.01 U	0.01 U
HEXACHLOROBIPHENYL	NA	NA				0.02 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	3.1 J/1.8 U	3.4 U/7.1 U	1.9 U/1.9 U	10.4 U/10.4 U
BARIUM	NA	NA	191/563	178 J/172 J	182/156	168 J/164 J
CADMIUM	60	NA	0.24 U/0.19 U	0.25 U/0.25 U	2.3 UJ/2.3 UJ	1.3 U/1.3 U
CHROMIUM	1,100	50 ⁽²⁾	7.7/2.7 U	6.6 U/4.3 U	3.4 U/3.4 U	4.8/3 U
COPPER	480	2.4 ⁽²⁾	5.4/2.0	1.2 U/7.8 U	1.4 UJ/1.4 UJ	4.8 J/2.8 UJ
LEAD	130	8.1 ⁽²⁾	3.4 J/0.91 U	1.3 UJ/2.7 U	1.3 U/1.3 U	5.5 U/5.5 U
SILVER	120	1.9 ⁽²⁾	0.99 U/1.0 J	0.75 UJ/4.0 U	2.7 U/2.7 U	3.5 U/3.5 U
ZINC	1,230	81 ⁽²⁾	1.2 U/12.0 U	4.8 U/12.0 U	25.9/14.2 U	14.6 U/43.6 U

TABLE 6-1

ROUNDS 1 THROUGH 4 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	6MW2S ROUND 1 4/21/98	6MW2S ROUND 2 7/31/98	6MW2S ROUND 3 1/28/99	6MW2S ROUND 4 4/21/99	6MW2S-D ROUND 4 4/21/99
VOCs (mg/L)							
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	0.8 J	1 U	0.5 J	1 U	1 U
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	0.6 J	1 U	1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U	1 U
SVOCs (mg/L)							
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 U	0.05 U	0.11 J	0.05 UJ
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 U	0.05 UR	0.13 J	0.05 UJ
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.1 U	0.048 U	0.1 UJ	0.13	0.1 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.048 U	0.05 UJ	0.13 J	0.05 UJ
BENZOIC ACID	NA	NA	12 U	19 U		10 UJ	10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	5 U	3 J	5 U	1 J	5 U
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.1 U	0.12 U	0.1 U	0.088 J	0.1 U
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.1 U	0.24 U	0.1 UJ	0.1 U	0.1 U
NAPHTHALENE	NA	NA	0.1 U	1.2 U	0.1 U	0.5 U	0.5 U
PHENANTHRENE	0.77	NA	0.05 U	0.095 U	0.05 U	0.12 J	0.05 UJ
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.05 U	0.24 U	0.05 U	0.12 J	0.05 UJ
Pesticides/PCBs (mg/L)							
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.01 U	0.019 U	0.02 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 U	0.2 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 U	0.2 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.005 U	0.009 U	0.01 U	0.01 U	0.01 U
HEXACHLOROBIPHENYL	NA	NA				0.02 U	0.02 U
Inorganics (total/dissolved) (mg/L)							
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	1.8 U/1.8 U	3.4 U/1.9 UJ	1.9 U/2.5 J	10.4 U/10.4 U	10.4 U/10.4 U
BARIUM	NA	NA	16.2/359	27.2 U/26.0 U	42.2/41.2	21.9 J/20.5 J	23.3 J/20.3 J
CADMIUM	60	NA	0.19 U/0.19 U	0.25 U/0.25 U	2.3 UJ/2.3 U	1.3 U/1.3 U	1.3 U/1.3 U
CHROMIUM	1,100	50 ⁽²⁾	1.0 U/0.60 U	9.8 U/8.0 U	3.4 U/3.4 U	3 U/3 U	4.8/3 U
COPPER	480	2.4 ⁽²⁾	3.2/2.4	0.69 UJ/0.69 UJ	1.4 UJ/1.4 UJ	2.8 UJ/3.3 J	2.8 UJ/2.8 UJ
LEAD	130	8.1 ⁽²⁾	1.5 J/0.91 U	1.7 U/1.9 U	1.9 U/1.3 U	5.5 U/5.5 U	5.5 U/5.5 U
SILVER	120	1.9 ⁽²⁾	0.99 U/0.99 U	0.81 U/1.3 U	2.7 U/3.4 U	3.5 U/3.5 U	4.3/3.5 U
ZINC	1,230	81 ⁽²⁾	18.5 U/108	7.4 U/4.9 U	22.0 J/8.3 UJ	22.9 U/27.9 U	22.5 U/21.2 U

TABLE 6-1

ROUNDS 1 THROUGH 4 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
PAGE 4 OF 10

Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	6MW6D ROUND 1 4/22/98	6MW6D ROUND 2 7/29/98	6MW6D ROUND 3 1/25/99	6MW6D ROUND 4 4/19/99
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	7	6	14	6
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	7	8	7	7
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 UJ	0.05 U	0.05 UJ
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 UJ	0.05 UR	0.05 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.1 U	0.047 UJ	0.1 UJ	0.1 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.047 UJ	0.05 UJ	0.05 U
BENZOIC ACID	NA	NA	12 UR	19 UJ		10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	5 U	23	5 U	3 J
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.1 U	0.12 UJ	0.1 U	0.1 UJ
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.1 U	0.23 UJ	0.1 U	0.1 U
NAPHTHALENE	NA	NA	0.1 U	1.2 UJ	0.1 U	0.5 U
PHENANTHRENE	0.77	NA	0.05 U	0.093 UJ	0.05 U	0.05 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.05 U	0.23 UJ	0.05 U	0.05 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.01 U	0.019 UJ	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 UJ	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 UJ	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.005 U	0.009 UJ	0.01 U	0.01 U
HEXACHLOROBIPHENYL	NA	NA				0.02 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	1.8 U/1.8 U	1.9 U/2.1 U	1.9 U/1.9 U	2.1 U/2.1 U
BARIUM	NA	NA	76.0/267	44.2 U/44.5 U	41.2/40.3	47.1/44.2
CADMIUM	60	NA	0.66 U/0.26 U	0.93 U/0.58 U	2.3 UJ/2.3 UJ	2.4 U/1.9 U
CHROMIUM	1,100	50 ⁽²⁾	1.9 U/0.99 U	1.3 U/11.8 U	3.4 U/3.4 U	4.3 U/4.3 U
COPPER	480	2.4 ⁽²⁾	1.2 J/1.3	1.8 U/0.81 U	1.4 UJ/1.4 UJ	1.6 U/3.9
LEAD	130	8.1 ⁽²⁾	1.1 J/0.91 U	2.3 U/1.3 UJ	1.5 U/1.3 U	1.1 U/1.1 U
SILVER	120	1.9 ⁽²⁾	1.2 J/1.0 J	1.6 U/0.75 U	2.7 U/2.7 U	2.5 U/2.5 U
ZINC	1,230	81 ⁽²⁾	53.3/91.3	26.0 U/19.4 U	111/16.4 U	13 U/13.7 U

TABLE 6-1

ROUNDS 1 THROUGH 4 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	6MW6S ROUND 1 4/21/98	6MW6S ROUND 2 7/29/98	6MW6S ROUND 3 1/25/99	6MW6S ROUND 4 4/19/99
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 UJ	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 UJ	0.05 U	0.05 UJ
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 UJ	0.05 UR	0.05 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.1 U	0.048 UJ	0.1 UJ	0.1 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.048 UJ	0.05 UJ	0.05 U
BENZOIC ACID	NA	NA	12 UR	20 UJ		10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	4 J	10 U	5 U	5 U
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.1 U	0.12 UJ	0.1 U	0.1 UJ
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.1 U	0.24 UJ	0.1 U	0.1 U
NAPHTHALENE	NA	NA	0.1 U	1.2 UJ	0.1 U	0.5 U
PHENANTHRENE	0.77	NA	0.05 U	0.095 UJ	0.05 U	0.05 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.05 U	0.24 UJ	0.05 U	0.05 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.01 U	0.019 UJ	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 UJ	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 UJ	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.005 U	0.009 UJ	0.01 U	0.01 U
HEXACHLOROBIPHENYL	NA	NA				0.02 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	1.8 U/1.8 U	3.4 U/1.9 UJ	1.9 U/1.9 U	2.1 U/2.1 U
BARIUM	NA	NA	32.5/335	30.9 U/34.2 U	42.4/43.9	35.8/33.5
CADMIUM	60	NA	0.19 U/0.19 U	0.25 U/0.25 U	4.1 U/2.3 UJ	1.9 U/1.9 U
CHROMIUM	1,100	50 ⁽²⁾	1.0 U/0.65 U	1.2 U/19.4 U	3.9 U/3.4 U	4.3 U/4.3 U
COPPER	480	2.4 ⁽²⁾	2.1/0.64 U	0.70 U/2.3 U	1.4 UJ/1.4 UJ	1.6 U/1.6 U
LEAD	130	8.1 ⁽²⁾	1.7 J/0.91 U	1.3 UJ/1.4 U	1.3 U/1.3 U	1.1 U/1.1 U
SILVER	120	1.9 ⁽²⁾	0.99 U/0.99 U	0.75 U/0.75 U	4.5 U/2.7 U	2.5 U/2.5 U
ZINC	1,230	81 ⁽²⁾	16.0 U/147	6.8 U/2.7 U	4.2 U/7.3 U	2.2 U/2.5 U

TABLE 6-1

ROUNDS 1 THROUGH 4 GROUNDWATER ANALYTICAL RESULTS SUMMARY
 ANNUAL GROUNDWATER MONITORING REPORT
 DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	6MW9S ROUND 1	6MW9S ROUND 2 7/30/98	6MW9S ROUND 3 1/26/99	6MW9S ROUND 4 4/23/99
VOCs (mg/L)						
1,1,1,2,2-TETRACHLOROETHANE	1,100	11 ^{(4)/(5)}		1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ^{(4)/(5)}		1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA		1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	NA	NA		1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ^{(4)/(5)}		1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ^{(4)/(5)}		1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ^{(4)/(5)}		0.12 U	0.05 U	0.05 UJ
BENZO(A)PYRENE	3.0	0.049 ^{(4)/(5)}		0.12 U	0.05 UR	0.05 U
BENZO(B)FLUORANTHENE	3.0	0.049 ^{(4)/(5)}		0.048 U	0.1 UJ	0.1 U
BENZO(K)FLUORANTHENE	3.0	0.049 ^{(4)/(5)}		0.048 U	0.05 UJ	0.05 U
BENZOIC ACID	NA	NA		19 UJ		10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ^{(4)/(5)}		10 U	5 U	5 U
FLUORANTHENE	37,000	370 ^{(4)/(5)}		0.12 U	0.1 U	0.1 UJ
FLUORENE	1,400,000	14,000 ^{(4)/(5)}		0.24 U	0.1 U	0.1 U
NAPHTHALENE	NA	NA		1.2 U	0.1 U	0.5 U
PHENANTHRENE	0.77	NA		0.096 U	0.05 U	0.05 U
PYRENE	1,100,000	11,000 ^{(4)/(5)}		0.24 U	0.05 U	0.05 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ^{(4)/(5)}		0.019 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ^{(4)/(5)}		0.19 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ^{(4)/(5)}		0.19 U	0.23	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ^{(4)/(5)}		0.009 U	0.01 U	0.01 U
HEXACHLOROBIPHENYL	NA	NA				0.02 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ^{(4)/(5)}		2.8 U/3.6 U	1.9 U/1.9 U	2.1 U/3.2 J
BARIUM	NA	NA		27.2 U/19.1 U	17.4/17.0	15.9/14.5
CADMIUM	60	NA		0.52 U/0.35 U	2.3 UJ/2.3 UJ	1.9 U/1.9 U
CHROMIUM	1,100	50 ⁽²⁾		3.7 U/7.6 U	3.4 U/3.4 U	4.3 U/4.3 U
COPPER	480	2.4 ⁽²⁾		2.3 U/1.2 U	1.4 UJ/1.4 UJ	3/2.5
LEAD	130	8.1 ⁽²⁾		1.4 U/2.7 U	2.0 U/1.3 U	1.1 U/1.1 U
SILVER	120	1.9 ⁽²⁾		0.75 U/0.75 U	2.7 U/2.7 U	2.5 U/2.5 U
ZINC	1,230	81 ⁽²⁾		70.3 U/68.0 U	80.0/80.7	126/122

TABLE 6-1

ROUNDS 1 THROUGH 4 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
PAGE 7 OF 10

Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	6MW10D ROUND 1 4/20/98	6MW10D ROUND 2 8/3/98	6MW10D ROUND 3 1/26/99	6MW10D ROUND 4 4/20/99
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	13	13	0.9 J	14
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	7	6	1 U	6
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 U	0.05 U	0.05 UJ
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.12 U	0.05 UR	0.05 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.1 U	0.047 U	0.1 UJ	0.1 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.05 U	0.047 U	0.05 UJ	0.05 U
BENZOIC ACID	NA	NA	12 U	19 U		10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	5 U	10 U	1 J	2 J
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.1 U	0.12 U	0.1 U	0.047 J
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.1 U	0.24 U	0.1 U	0.1 U
NAPHTHALENE	NA	NA	0.1 U	1.2 U	0.1 U	0.5 U
PHENANTHRENE	0.77	NA	0.18	0.066 J	0.05 U	0.039 J
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.035 J	0.24 U	0.05 U	0.05 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.01 U	0.019 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.19 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.005 U	0.009 U	0.01 U	0.01 U
HEXACHLOROBIPHENYL	NA	NA				0.02 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	15.9/12.7	18.5 UJ/18.5 UJ	5.0/6.6	10.4 U/10.4 U
BARIUM	NA	NA	90.0/181	84.8 J/80.1 J	60.8/60.6	65 J/61.3 J
CADMIUM	60	NA	0.29 U/0.19 U	2.3 U/2.3 U	2.3 UJ/2.3 UJ	1.3 U/1.3 U
CHROMIUM	1,100	50 ⁽²⁾	3.6 U/1.3 U	3.4 UJ/3.4 UJ	3.4 U/3.4 U	3 U/5.1
COPPER	480	2.4 ⁽²⁾	7.7/1.1 J	3.0 U/1.4 UJ	1.4 UJ/1.4 UJ	2.8 UJ/3.2 J
LEAD	130	8.1 ⁽²⁾	4.2 J/1.0 J	13.1 UJ/13.1 UJ	1.3 U/1.3 U	5.5 U/5.45 U
SILVER	120	1.9 ⁽²⁾	0.99 U/0.99 U	2.7 UJ/2.7 UJ	2.7 U/2.7 U	3.5 U/5.5
ZINC	1,230	81 ⁽²⁾	240/222	696 U/667 U	336/364	513/451

TABLE 6-1

ROUNDS 1 THROUGH 4 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	6MW10S ROUND 1 4/20/98	6MW10S-D ROUND 1 4/20/98	6MW10S ROUND 2 7/30/98	6MW10S ROUND 3 1/26/99	6MW10S-D ROUND 3 1/26/99	6MW10S ROUND 4 4/20/99
VOCs (mg/L)								
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1	0.9 J	2	1 U	1	1
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U	1 U	1 U
SVOCs (mg/L)								
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.037 J	0.05 U	0.12 U	0.05 U	0.05 U	0.05 UJ
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.082	0.05 U	0.12 U	0.05 UR	0.05 UR	0.05 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.089 J	0.1 U	0.049 U	0.1 UJ	0.1 UJ	0.1 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.042 J	0.05 U	0.049 U	0.05 UJ	0.05 UJ	0.05 U
BENZOIC ACID	NA	NA	12 U	12 UR	19 U			10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	1 J	5 U	10 U	5 U	5 U	2 J
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.15	0.1 U	0.26	0.068 J	0.083 J	0.1 UJ
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.1 U	0.1 U	0.18 J	0.1 UJ	0.1 UJ	0.1 U
NAPHTHALENE	NA	NA	0.1 U	0.1 U	1.2 U	0.1 U	0.1 U	0.5 U
PHENANTHRENE	0.77	NA	0.3	0.11	0.32	0.05 U	0.05 U	0.05 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.24	0.055	0.28	0.11	0.14	0.069
Pesticides/PCBs (mg/L)								
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.01 U	0.01 U	0.019 U	0.02 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.1 U	0.19 U	0.2 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.1 U	0.1 U	0.19 U	0.2 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.005 U	0.005 U	0.010 U	0.01 U	0.01 U	0.01 U
HEXACHLOROBIPHENYL	NA	NA						0.02 U
Inorganics (total/dissolved) (mg/L)								
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	1.8 U/1.8 U	2.4 J/1.8 U	2.8 U/2.1 U	1.9 U/1.9 U	1.9 U/1.9 U	2.1 U/2.1 U
BARIUM	NA	NA	51.1/97.5	55.3/225	68.7 J/73.9 J	114/121	116/114	112/115
CADMIUM	60	NA	0.19 U/0.19 U	0.19 U/0.19 U	0.25 U/0.25 U	2.3 UJ/2.3 UJ	2.3 UJ/2.3 UJ	1.9 U/1.9 U
CHROMIUM	1,100	50 ⁽²⁾	2.2 U/1.6 U	2.4 U/0.93 U	1.6 U/7.9 U	3.4 U/3.4 U	3.4 U/3.4 U	4.3 U/4.3 U
COPPER	480	2.4 ⁽²⁾	5.5/1.2 J	5.9/0.64 U	2.6 U/0.69 U	1.4 UJ/1.4 UJ	1.4 UJ/1.4 UJ	6.9/1.6 U
LEAD	130	8.1 ⁽²⁾	6.8 J/1.6 J	6.4 J/0.91 U	2.3 U/1.3 UJ	1.3 U/1.3 U	1.3 U/1.3 U	2 J/1.1 U
SILVER	120	1.9 ⁽²⁾	0.99 U/0.99 U	0.99 U/0.99 U	0.75 U/0.75 U	2.7 U/2.7 U	2.7 U/2.7 U	2.5 U/2.5 U
ZINC	1,230	81 ⁽²⁾	19.9 U/8.9 U	21.8/20.2 U	8.3 U/3.2 U	29.8/17.2 U	26.4 J/18.9	24.1 U/7.8 U

TABLE 6-1

ROUNDS 1 THROUGH 4 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	6MW11D ROUND 1	6MW11D ROUND 2 7/30/98	6MW11D-D ROUND 2 7/30/98	6MW11D ROUND 3 1/27/99	6MW11D ROUND 4 4/22/99
VOCs (mg/L)							
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾		1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾		1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA		3	3	5	3
TRANS-1,2-DICHLOROETHENE	NA	NA		1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾		1 U	1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾		1 U	1 U	0.6 J	0.7 J
SVOCs (mg/L)							
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾		0.12 U	0.12 U	0.05 U	0.05 UJ
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾		0.12 U	0.12 U	0.05 UR	0.05 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾		0.047 U	0.047 U	0.1 UJ	0.1 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾		0.047 U	0.047 U	0.05 UJ	0.05 U
BENZOIC ACID	NA	NA		20 U	19 UJ		10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾		10 U	11	5 U	5 U
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾		0.12 U	0.12 U	0.1 U	0.1 UJ
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾		0.24 U	0.24 U	0.1 UJ	0.1 U
NAPHTHALENE	NA	NA		1.2 U	1.2 U	0.1 U	0.5 U
PHENANTHRENE	0.77	NA		0.20	0.20	0.048 J	0.037 J
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾		0.24 U	0.24 U	0.05 U	0.05 U
Pesticides/PCBs (mg/L)							
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾		0.019 UJ	0.019 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾		0.19 UJ	0.19 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾		0.19 UJ	0.19 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾		0.009 UJ	0.009 U	0.01 U	0.01 U
HEXACHLOROBIPHENYL	NA	NA					0.02 U
Inorganics (total/dissolved) (mg/L)							
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾		9.5 U/9.4 U	8.3 U/8.6 U	1.9 U/1.9 U	10.4 U/10.4 U
BARIUM	NA	NA		261 J/289 J	250 J/279 J	280/289	269 J/265 J
CADMIUM	60	NA		0.25 U/0.25 U	0.25 U/0.25 U	2.3 UJ/2.3 UJ	1.3 U/1.3 U
CHROMIUM	1,100	50 ⁽²⁾		8.2 U/11.4 U	7.8 U/13.3 U	3.4 U/3.4 U	23.2/3 U
COPPER	480	2.4 ⁽²⁾		9.4 U/0.69 UJ	8.4 U/0.69 UJ	1.4 UJ/1.4 UJ	2.8 UJ/2.8 UJ
LEAD	130	8.1 ⁽²⁾		13.1 UJ/1.3 UJ	14.6 U/1.4 U	1.3 U/1.3 U	5.5 U/5.5 U
SILVER	120	1.9 ⁽²⁾		0.75 UJ/2.5 U	9.4 U/1.9 U	2.7 U/2.7 U	3.5 U/3.9
ZINC	1,230	81 ⁽²⁾		81.1 U/40.1 U	71.8 U/38.6 U	20.8 J/6.2 U	8.9 U/4.6 U

TABLE 6-1

ROUNDS 1 THROUGH 4 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	6MW11S ROUND 1	6MW11S ROUND 2 7/30/98	6MW11S ROUND 3 1/27/99	6MW11S ROUND 4 4/22/99
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾		1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾		1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA		2	0.8 J	1
TRANS-1,2-DICHLOROETHENE	NA	NA		1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾		1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾		1 U	1 U	0.6 J
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾		0.12 U	0.05 U	0.05 UJ
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾		0.12 U	0.05 UR	0.05 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾		0.048 U	0.1 UJ	0.1 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾		0.048 U	0.05 UJ	0.05 U
BENZOIC ACID	NA	NA		19 U		10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾		5 J	5 U	5 U
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾		0.28	0.085 J	0.11 J
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾		0.42	0.25 J	0.07 J
NAPHTHALENE	NA	NA		1.2 U	0.1 U	0.5 U
PHENANTHRENE	0.77	NA		0.56	0.17	0.052
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾		0.28	0.1	0.14 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾		0.019 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾		0.19 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾		0.19 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾		0.008 R	0.01 U	0.01 U
HEXACHLOROBIPHENYL	NA	NA				0.02 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾		2.0 U/3.4 U	1.9 U/1.9 U	2.7 J/2.1 U
BARIUM	NA	NA		105 J/110 J	81.2/80.5	83.2/76.1
CADMIUM	60	NA		0.25 U/0.25 U	2.3 UJ/2.3 UJ	1.9 U/1.9 U
CHROMIUM	1,100	50 ⁽²⁾		1.1 U/10.0 U	3.4 U/3.4 U	4.3 U/4.3 U
COPPER	480	2.4 ⁽²⁾		13.8 U/1.2 U	1.4 UJ/1.4 UJ	7.1/1.6 U
LEAD	130	8.1 ⁽²⁾		6.6 UJ/1.4 U	4.1 U/1.3 U	1.7 J/1.1 U
SILVER	120	1.9 ⁽²⁾		0.75 U/0.95 U	2.7 U/2.7 U	2.5 U/2.5 U
ZINC	1,230	81 ⁽²⁾		16.8 U/8.6 U	41.8/6.7 U	45.3/5 U

NOTES:

Bold numbers denote exceedance of secondary monitoring criterion. There are no exceedances of primary monitoring criteria.

1 Surface Water Protection Criteria for substances in groundwater, using a site-specific dilution factor of 100.

2 Federal Ambient Water Quality Criteria for protection of aquatic life (chronic, saltwater).

3 Connecticut Water Quality Criteria for protection of aquatic life (chronic, saltwater).

4 Federal Ambient Water Quality Criteria for protection of human health from consumption of organisms.

5 Connecticut Water Quality Criteria for protection of human health from consumption of organisms.

J Estimated Value

R Rejected Value

U Undetected

NA Not Available

TABLE 6-2

ROUNDS 5 THROUGH 8 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	ROUND 5 6MW1S 7/22/99	ROUND 6 6MW1S 10/24/99	ROUND 7 6MW1S 1/21/00	ROUND 8 6MW1S 4/11/00
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	0.44 J	0.4 J	1 U	0.5 J
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.15 U	0.17 U	0.15 U
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.15 U	0.17 U	0.15 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.15 U	0.17 U	0.15 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.15 U	0.17 U	0.15 U
BENZOIC ACID	NA	NA	50 U	20 U	20 U	
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	22 U	19.8	2	43
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	1.2 U	1 U	1.1 U	1 U
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	1.2 U	1 U	1.1 U	1 U
NAPHTHALENE	NA	NA	1 U	1 U	1.1 U	1 U
PHENANTHRENE	0.77	NA	0.2 U	1 U	1.1 U	1 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1 U	1.1 U	1 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.020 U	0.02 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.2 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.2 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.010 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	1.1 U/2.0 J	3.8 U/3.8 U	2.6 UJ	2.3 U
BARIUM	NA	NA	19.0 J/20.0 J	14.9 U/14.9 U	21.5	42.3
CADMIUM	60	NA	3.0 UJ/3.0 UJ	0.30 U/0.30 U	0.3 U	0.68 U
CHROMIUM	1,100	50 ⁽²⁾	2.4 U/2.4 U	2.4 U/2.4 U	1 U	0.8 U
COPPER	480	2.4 ⁽²⁾	1.4 UJ/1.7 J	1.2 U/1.2 U	1.3 U	1.6 U
LEAD	130	8.1 ⁽²⁾	1.0 U/1.0 U	1.7 U/1.7 U	1.8 UJ	2.1 UJ
SILVER	120	1.9 ⁽²⁾	2.2 U/2.2 U	1.3 U/1.3 U	1.1 U	0.9 U
ZINC	1,230	81 ⁽²⁾	12.8 U/14.2 U	19.1/9.1 U	4.5 J	14.4

TABLE 6-2

ROUNDS 5 THROUGH 8 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	ROUND 5 6MW2D 7/21/99	ROUND 6 6MW2D 10/23/99	ROUND 7 6MW2D 1/20/00	ROUND 8 6MW2D 4/11/00
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ^{(4)/(5)}	1 UJ	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ^{(4)/(5)}	1 UJ	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	0.9 J	1 U
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ^{(4)/(5)}	1 U	1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ^{(4)/(5)}	1 U	1 U	0.8 J	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.16 U	0.15 U	0.16 U
BENZO(A)PYRENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.16 U	0.15 U	0.16 U
BENZO(B)FLUORANTHENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.16 U	0.15 U	0.16 U
BENZO(K)FLUORANTHENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.16 U	0.15 U	0.16 U
BENZOIC ACID	NA	NA	50 U	20 U	20 UJ	
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ^{(4)/(5)}	10 U	1.6 J	2 U	3.7
FLUORANTHENE	37,000	370 ^{(4)/(5)}	0.2 U	1 U	1 U	1 U
FLUORENE	1,400,000	14,000 ^{(4)/(5)}	0.2 U	1 U	1 U	1 U
NAPHTHALENE	NA	NA	1 U	1 U	1 U	1 U
PHENANTHRENE	0.77	NA	0.2 U	1 U	1 U	1 U
PYRENE	1,100,000	11,000 ^{(4)/(5)}	0.2 U	1 U	1 U	1 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ^{(4)/(5)}	0.020 U	0.021 U	0.021 U	0.02 U
AROCLOR-1254	5.0	0.00017 ^{(4)/(5)}	0.20 U	0.21 U	0.21 U	0.2 U
AROCLOR-1260	5.0	0.00017 ^{(4)/(5)}	0.20 U	0.21 U	0.21 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ^{(4)/(5)}	0.010 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ^{(4)/(5)}	1.5 J/1.1 U	3.8 U/4.2 J	2.6 UJ	2.3 U
BARIUM	NA	NA	149/166	166/175	174	146
CADMIUM	60	NA	3.0 UJ/3.0 UJ	0.30 U/0.30 U	0.33 U	0.2 U
CHROMIUM	1,100	50 ⁽²⁾	2.4 U/2.4 U	2.4 U/2.4 U	2.4 U	3 U
COPPER	480	2.4 ⁽²⁾	4.3 J/1.4 U	1.2 U/1.2 U	3.2 U	7 U
LEAD	130	8.1 ⁽²⁾	1.1 U/1.0 U	1.7 U/1.7 U	1.8 U	2.1 UJ
SILVER	120	1.9 ⁽²⁾	2.2 U/2.2 U	1.3 U/1.3 U	1.1 UJ	0.9 U
ZINC	1,230	81 ⁽²⁾	14.0 U/1.7 UJ	5.9 U/7.2 U	27 J	16.7 J

TABLE 6-2

ROUNDS 5 THROUGH 8 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	ROUND 5 6MW2S 7/21/99	ROUND 6 6MW2S 10/23/99	ROUND 7 6MW2S 1/20/00	ROUND 8 6MW2S 4/11/00
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 UJ	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 UJ	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	0.24 J	0.3 J	1 U	0.4 J
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	0.44 J	0.3 J	1 U	0.4 J
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.18 U	0.15 U	0.16 U
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.18 U	0.15 U	0.16 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.18 U	0.15 U	0.16 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.18 U	0.15 U	0.16 U
BENZOIC ACID	NA	NA	50 U	21 U	20 UJ	
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	37	2.1 U	2 U	2 U
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.2 U	1.2 U	1 U	1 U
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1.2 U	1 U	1 U
NAPHTHALENE	NA	NA	1 U	1.2 U	1 U	1 U
PHENANTHRENE	0.77	NA	0.2 U	1.2 U	1 U	1 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1.2 U	1 U	1 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.020 U	0.02 U	0.021 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.2 U	0.21 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.2 U	0.21 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.010 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	1.1 U/1.1 U	3.9 J/3.8 U	2.6 UJ	2.3 U
BARIUM	NA	NA	33.0 J/33.6 J	40.6/42.4	28.1	21.8
CADMIUM	60	NA	6.0 UJ/3.0 UJ	0.30 U/0.30 U	0.6 U	0.42 U
CHROMIUM	1,100	50 ⁽²⁾	2.4 U/2.4 U	2.4 U/2.4 U	1 U	1.1 U
COPPER	480	2.4 ⁽²⁾	2.2 J/1.4 U	1.2 U/1.2 U	7.5	15.4
LEAD	130	8.1 ⁽²⁾	1.0 U/1.0 U	1.7 U/1.7 U	6.1 U	9.2
SILVER	120	1.9 ⁽²⁾	2.2 U/2.2 U	1.3 U/1.3 U	1.1 UJ	0.9 U
ZINC	1,230	81 ⁽²⁾	11.0 U/10.2 U	11.2 J/45.9 J	36.9 J	41.6

TABLE 6-2

ROUNDS 5 THROUGH 8 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	ROUND 5 6MW6D 7/19/99	ROUND 6 6MW6D 10/21/99	ROUND 7 6MW6D 1/18/00	ROUND 8 6MW6D 4/10/00
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 UJ	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 UJ	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	6.6	6	5	5
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	10	11	9	10
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.15 U	0.16 U	0.16 U
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.15 U	0.16 U	0.16 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.15 U	0.16 U	0.16 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.15 U	0.16 U	0.16 U
BENZOIC ACID	NA	NA	54 U	20 U	21 UJ	
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	68	2 U	2.1 U	2 U
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.2 U	1 U	1 U	1 U
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1 U	1 U	1 U
NAPHTHALENE	NA	NA	1 U	1 U	1 U	1 U
PHENANTHRENE	0.77	NA	0.2 U	1 U	1 U	1 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1 U	1 U	1 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.020 U	0.02 U	0.021 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.2 U	0.21 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.2 U	0.21 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.010 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	1.1 U/1.1 U	3.8 U	2.6 U	2.3 U
BARIUM	NA	NA	45.6/44.2	36.5	39.3	44.8
CADMIUM	60	NA	3.0 UJ/3.0 UJ	0.58 U	0.45 U	0.73 U
CHROMIUM	1,100	50 ⁽²⁾	2.4 U/2.4 U	2.4 U	1 U	0.8 U
COPPER	480	2.4 ⁽²⁾	1.4 U/2.0 J	1.2 U	1.3 U	1.3 U
LEAD	130	8.1 ⁽²⁾	1.2 U/1.0 U	1.7 U	1.8 U	2.1 UJ
SILVER	120	1.9 ⁽²⁾	2.2 U/2.2 U	1.3 U	1.1 UJ	0.9 U
ZINC	1,230	81 ⁽²⁾	9.8 U/10.4 U	12.2	13.3 J	14.9

TABLE 6-2

ROUNDS 5 THROUGH 8 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	ROUND 5 6MW6S 7/19/99	ROUND 6 6MW6S 10/21/99	ROUND 6 6MW6S (DUP) 10/21/99	ROUND 7 6MW6S 1/18/00	ROUND 8 6MW6S 4/10/00	ROUND 8 6MW6S (DUP) 4/10/00
VOCs (mg/L)								
1,1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 UJ	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 UJ	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	0.59 J	0.5 J	0.5 J	0.5 J	0.3 J	0.3 J
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U	1 U	1 U
SVOCs (mg/L)								
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.17 U	0.15 U	0.15 U	0.16 U	0.16 U
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.17 U	0.15 U	0.15 U	0.16 U	0.16 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.17 U	0.15 U	0.15 U	0.16 U	0.16 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.17 U	0.15 U	0.15 U	0.16 U	0.16 U
BENZOIC ACID	NA	NA	50 U	20 U	20 U	20 UJ		
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	10 U	2 U	1.1 J	2 U	2 U	2.1 U
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.2 U	1.1 U	1 U	1 U	1 U	1 U
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1.1 U	1 U	1 U	1 U	1 U
NAPHTHALENE	NA	NA	1 U	1.1 U	1 U	1 U	1 U	1 U
PHENANTHRENE	0.77	NA	0.2 U	1.1 U	1 U	1 U	1 U	1 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1.1 U	1 U	1 U	1 U	1 U
Pesticides/PCBs (mg/L)								
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.020 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (mg/L)								
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	1.1 U/1.1 U	3.8 U	3.8 U	2.6 U	2.3 U	2.3 U
BARIUM	NA	NA	38.7/35.5	58.4	57.8	27.6	23.5	22.8
CADMIUM	60	NA	3.0 UJ/3.0 UJ	0.30 U	0.30 U	0.36 U	0.2 U	0.2 U
CHROMIUM	1,100	50 ⁽²⁾	2.4 U/2.4 U	2.4 U	2.4 U	1 U	0.8 U	0.8 U
COPPER	480	2.4 ⁽²⁾	1.6 J/1.9 J	1.2 U	1.2 U	1.3 U	1 U	1.2 U
LEAD	130	8.1 ⁽²⁾	2.9 U/1.0 U	1.7 U	1.7 U	1.8 U	2.1 UJ	2.1 UJ
SILVER	120	1.9 ⁽²⁾	2.2 U/2.2 U	1.3 U	1.3 U	1.1 UJ	0.9 U	0.9 U
ZINC	1,230	81 ⁽²⁾	2.7 U/3.8 U	11.5	2.6 U	3.8 U	10.5	15.3

TABLE 6-2

ROUNDS 5 THROUGH 8 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	ROUND 5 6MW9S 7/20/99	ROUND 6 6MW9S 10/22/99	ROUND 7 6MW9S 1/19/00	ROUND 7 6MW9S (DUP) 1/19/00	ROUND 8 6MW9S 4/11/00
VOCs (mg/L)							
1,1,2,2-TETRACHLOROETHANE	1,100	11 ^{(4)/(5)}	1 UJ	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ^{(4)/(5)}	1 UJ	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1	1 U	1 U
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ^{(4)/(5)}	0.47 J	0.7 J	1 U	1 U	0.3 J
VINYL CHLORIDE	157,500	525 ^{(4)/(5)}	1 U	1 U	1 U	1 U	1 U
SVOCs (mg/L)							
BENZO(A)ANTHRACENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.17 U	0.16 U	0.16 U	0.16 U
BENZO(A)PYRENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.17 U	0.16 U	0.16 U	0.16 U
BENZO(B)FLUORANTHENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.17 U	0.16 U	0.16 U	0.16 U
BENZO(K)FLUORANTHENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.17 U	0.16 U	0.16 U	0.16 U
BENZOIC ACID	NA	NA	50 U	20 U	21 UJ	21 UJ	
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ^{(4)/(5)}	10 U	2 U	2.1 U	2.1 U	2 U
FLUORANTHENE	37,000	370 ^{(4)/(5)}	0.2 U	1.1 U	1.1 U	1.1 U	1 U
FLUORENE	1,400,000	14,000 ^{(4)/(5)}	0.2 U	1.1 U	1.1 U	1.1 U	1 U
NAPHTHALENE	NA	NA	1 U	1.1 U	1.1 U	1.1 U	1 U
PHENANTHRENE	0.77	NA	0.2 U	1.1 U	1.1 U	1.1 U	1 U
PYRENE	1,100,000	11,000 ^{(4)/(5)}	0.2 U	1.1 U	1.1 U	1.1 U	1 U
Pesticides/PCBs (mg/L)							
4,4'-DDD	NA	0.00084 ^{(4)/(5)}	0.020 U	0.02 U	0.02 U	0.021 U	0.02 U
AROCLOR-1254	5.0	0.00017 ^{(4)/(5)}	0.20 U	0.2 U	0.2 U	0.21 U	0.2 U
AROCLOR-1260	5.0	0.00017 ^{(4)/(5)}	0.20 U	0.2 U	0.2 U	0.21 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ^{(4)/(5)}	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (mg/L)							
ARSENIC	40	0.14 ^{(4)/(5)}	1.1 U/1.9 J	3.8 U/3.8 U	2.6 U	2.6 U	2.3 U
BARIUM	NA	NA	18.5/18.6	17.7 J/18.0 J	14.6	14.4	11.4
CADMIUM	60	NA	3.0 UJ/3.0 UJ	0.59 U/0.49 U	0.54 U	0.61 U	0.2 U
CHROMIUM	1,100	50 ⁽²⁾	2.4 U/2.4 U	2.4 U/2.4 U	1 U	1 U	0.8 U
COPPER	480	2.4 ⁽²⁾	2.8 J/2.9	3.3/3.7	3 U	2.9 U	5.1 U
LEAD	130	8.1 ⁽²⁾	1.2 U/1.0 U	1.7 U/1.7 U	1.8 U	1.8 U	2.1 UJ
SILVER	120	1.9 ⁽²⁾	2.2 U/2.2 U	1.3 U/1.3 U	1.1 UJ	1.1 UJ	0.9 U
ZINC	1,230	81 ⁽²⁾	109 J/76.9 J	96.6/123	111	120	123

TABLE 6-2

ROUNDS 5 THROUGH 8 GROUNDWATER ANALYTICAL RESULTS SUMMARY
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DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	ROUND 5 6MW10D 7/19/99	ROUND 6 6MW10D 10/22/99	ROUND 7 6MW10D 1/18/00	ROUND 8 6MW10D 4/10/00
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 UJ	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 UJ	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	22	16	15	15
TRANS-1,2-DICHLOROETHENE	NA	NA	0.29 J	0.3 J	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	6.1	5	5	5
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.16 U	0.16 U	0.16 U
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.16 U	0.16 U	0.16 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.16 U	0.16 U	0.16 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.16 U	0.16 U	0.16 U
BENZOIC ACID	NA	NA	250 U	20 U	21 UJ	
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	180	2.4	2.1 U	2 U
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.2 U	1 U	1.1 U	1 U
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1 U	1.1 U	1 U
NAPHTHALENE	NA	NA	1 U	1 U	1.1 U	1 U
PHENANTHRENE	0.77	NA	0.2 U	1 U	1.1 U	1 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1 U	1.1 U	1 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.020 UJ	0.02 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 UJ	0.2 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 UJ	0.2 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.010 UJ	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	4.3/5.0 J	7.5 J/4.2 J	4.2 J	4.5 U
BARIUM	NA	NA	44.4 J/44.9 J	42.9/43.5	44.8	35.2
CADMIUM	60	NA	3.0 UJ/3.0 UJ	0.33 U/0.30 U	0.37 U	0.22 U
CHROMIUM	1,100	50 ⁽²⁾	2.4 U/2.4 U	2.4 U/2.4 U	1 U	0.8 UJ
COPPER	480	2.4 ⁽²⁾	1.4 UJ/3.3	1.2 U/1.2 U	1.3 U	1.6 U
LEAD	130	8.1 ⁽²⁾	1.1 U/1.0 U	1.7 U/1.7 U	1.8 U	2.1 UJ
SILVER	120	1.9 ⁽²⁾	2.2 U/2.2 U	1.3 U/1.3 U	1.1 UJ	0.9 U
ZINC	1,230	81 ⁽²⁾	173 J/167 J	99.4/91.7	77.6	130

TABLE 6-2

ROUNDS 5 THROUGH 8 GROUNDWATER ANALYTICAL RESULTS SUMMARY
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DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	ROUND 5 6MW10S 7/19/99	ROUND 6 6MW10S 10/22/99	ROUND 7 6MW10S 1/18/00	ROUND 8 6MW10S 4/10/00
VOCs (mg/L)						
1,1,1,2,2-TETRACHLOROETHANE	1,100	11 ^{(4)/(5)}	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ^{(4)/(5)}	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	1.9	2	0.9 J	1
TRANS-1,2-DICHLOROETHENE	NA	NA	0.17 J	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ^{(4)/(5)}	0.26 J	0.2 J	1 U	0.2 J
VINYL CHLORIDE	157,500	525 ^{(4)/(5)}	1 U	1 U	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.16 U	0.15 U	0.15 U
BENZO(A)PYRENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.16 U	0.15 U	0.15 U
BENZO(B)FLUORANTHENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.16 U	0.15 U	0.15 U
BENZO(K)FLUORANTHENE	3.0	0.049 ^{(4)/(5)}	0.2 U	0.16 U	0.15 U	0.15 U
BENZOIC ACID	NA	NA	50 U	20 U	20 UJ	
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ^{(4)/(5)}	43	3.7	4.1	2.4
FLUORANTHENE	37,000	370 ^{(4)/(5)}	0.2 U	1 U	1 U	1 U
FLUORENE	1,400,000	14,000 ^{(4)/(5)}	0.2 U	1 U	1 U	1 U
NAPHTHALENE	NA	NA	1 U	1 U	1 U	1 U
PHENANTHRENE	0.77	NA	0.2 U	1 U	1 U	1 U
PYRENE	1,100,000	11,000 ^{(4)/(5)}	0.2 U	1 U	1 U	1 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ^{(4)/(5)}	0.020 U	0.021 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ^{(4)/(5)}	0.20 U	0.21 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ^{(4)/(5)}	0.20 U	0.21 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ^{(4)/(5)}	0.010 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ^{(4)/(5)}	1.1 U/1.6 J	3.8 U/3.8 U	2.6 U	2.3 U
BARIUM	NA	NA	193/187	133/134	127	73.2
CADMIUM	60	NA	3.0 UJ/3.0 UJ	0.30 U/0.38 U	1.2 U	0.4 U
CHROMIUM	1,100	50 ⁽²⁾	2.4 U/2.4 U	2.4 U/2.4 U	1 U	0.8 U
COPPER	480	2.4 ⁽²⁾	5.8 J/1.4 U	1.9 J/1.2 U	4.9 U	4.6 U
LEAD	130	8.1 ⁽²⁾	2.7 U/1.0 U	1.7 U/1.7 U	1.8 U	2.1 UJ
SILVER	120	1.9 ⁽²⁾	2.2 U/2.2 U	1.3 U/1.3 U	1.1 UJ	0.9 U
ZINC	1,230	81 ⁽²⁾	18.4 U/6.3 U	12.7/4.8 U	91.5	33.6

TABLE 6-2

ROUNDS 5 THROUGH 8 GROUNDWATER ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING REPORT
DRMO, NSB-NLON, GROTON, CONNECTICUT
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	ROUND 5 6MW11D 7/20/99	ROUND 6 6MW11D 10/21/99	ROUND 7 6MW11D 1/19/00	ROUND 8 6MW11D 4/12/00
VOCs (mg/L)						
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 UJ	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 UJ	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	3.4	3	1 U	3
TRANS-1,2-DICHLOROETHENE	NA	NA	1 U	1 U	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	1 U	1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1 U	0.8 J	1 U	1 U
SVOCs (mg/L)						
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.16 U	0.15 U	0.15 U
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.16 U	0.15 U	0.15 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.16 U	0.15 U	0.15 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.16 U	0.15 U	0.15 U
BENZOIC ACID	NA	NA	50 U	20 U	20 UJ	
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	13 U	2 U	2 U	1.4 J
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.2 U	1 U	1 U	1 U
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1 U	1 U	1 U
NAPHTHALENE	NA	NA	1 U	1 U	1 U	1 U
PHENANTHRENE	0.77	NA	0.2 U	1 U	1 U	1 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1 U	1 U	1 U
Pesticides/PCBs (mg/L)						
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.020 U	0.02 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.2 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.2 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.010 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (mg/L)						
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	2.3/2.1 J	3.8 J	2.6 UJ	7.4 U
BARIUM	NA	NA	242/251	269	280	242
CADMIUM	60	NA	3.0 UJ/3.0 UJ	0.30 U	0.3 UJ	0.44 U
CHROMIUM	1,100	50 ⁽²⁾	2.4 U/2.4 U	2.4 U	1 U	3.3 U
COPPER	480	2.4 ⁽²⁾	1.4 UJ/1.4 U	1.2 U	1.9 U	12.3 U
LEAD	130	8.1 ⁽²⁾	1.3 U/1.0 U	1.7 U	1.8 U	2.1 UJ
SILVER	120	1.9 ⁽²⁾	2.2 U/2.2 U	1.3 U	1.1 UJ	0.9 U
ZINC	1,230	81 ⁽²⁾	6.4 U/1.7 U	10.4 U	8.7 J	44.8

TABLE 6-2

ROUNDS 5 THROUGH 8 GROUNDWATER ANALYTICAL RESULTS SUMMARY
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Chemical	Primary Monitoring Criterion ⁽¹⁾	Secondary Monitoring Criterion ⁽¹⁾	ROUND 5 6MW11S 7/20/99	ROUND 6 6MW11S (DUP) 7/22/99	ROUND 6 6MW11S 10/21/99	ROUND 7 6MW11S 1/19/00	ROUND 8 6MW11S 4/12/00
VOCs (mg/L)							
1,1,2,2-TETRACHLOROETHANE	1,100	11 ⁽⁴⁾⁽⁵⁾	1 UJ	1 UJ	1 U	1 U	1 U
1,2-DICHLOROETHANE	29,700	99 ⁽⁴⁾⁽⁵⁾	1 UJ	1 UJ	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	NA	NA	2.1	1 U	2	1 U	1
TRANS-1,2-DICHLOROETHENE	NA	NA	0.25 J	1 U	0.3 J	1 U	1 U
TRICHLOROETHENE	23,400	81 ⁽⁴⁾⁽⁵⁾	0.21 J	0.46 J	1 U	1 U	1 U
VINYL CHLORIDE	157,500	525 ⁽⁴⁾⁽⁵⁾	1.1	1 U	2	1 U	1 J
SVOCs (mg/L)							
BENZO(A)ANTHRACENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.2 U	0.17 U	0.16 U	0.17 U
BENZO(A)PYRENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.2 U	0.17 U	0.16 U	0.17 U
BENZO(B)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.2 U	0.17 U	0.16 U	0.17 U
BENZO(K)FLUORANTHENE	3.0	0.049 ⁽⁴⁾⁽⁵⁾	0.2 U	0.2 U	0.17 U	0.16 U	0.17 U
BENZOIC ACID	NA	NA	50 U	50 U	21 U	20 UJ	
BIS(2-ETHYLHEXYL)PHTHALATE	590	5.9 ⁽⁴⁾⁽⁵⁾	39	34 U	2.1 U	2 U	2 U
FLUORANTHENE	37,000	370 ⁽⁴⁾⁽⁵⁾	0.2 U	1.2 U	1.2 U	1.1 U	1.1 U
FLUORENE	1,400,000	14,000 ⁽⁴⁾⁽⁵⁾	0.2 U	1.2 U	1.2 U	1.1 U	1.1 U
NAPHTHALENE	NA	NA	1 U	1 U	1.2 U	1.1 U	1.1 U
PHENANTHRENE	0.77	NA	0.2 U	0.2 U	1.2 U	1.1 U	1.1 U
PYRENE	1,100,000	11,000 ⁽⁴⁾⁽⁵⁾	0.21	0.2 U	1.2 U	1.1 U	1.1 U
Pesticides/PCBs (mg/L)							
4,4'-DDD	NA	0.00084 ⁽⁴⁾⁽⁵⁾	0.020 U	0.020 U	0.021 U	0.02 U	0.02 U
AROCLOR-1254	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.20 U	0.21 U	0.2 U	0.2 U
AROCLOR-1260	5.0	0.00017 ⁽⁴⁾⁽⁵⁾	0.20 U	0.20 U	0.21 U	0.2 U	0.2 U
HEPTACHLOR EPOXIDE	0.5	0.00011 ⁽⁴⁾⁽⁵⁾	0.010 U	0.010 U	0.01 U	0.01 U	0.01 U
Inorganics (total/dissolved) (mg/L)							
ARSENIC	40	0.14 ⁽⁴⁾⁽⁵⁾	1.1 U/1.1 U	1.1 U/1.6 J	3.8 U	2.6 U	2.3 U
BARIUM	NA	NA	143/148	19.4 J/19.7 J	120	89.4	71.4
CADMIUM	60	NA	3.0 UJ/3.0 UJ	6.0 UJ/3.0 UJ	0.30 U	0.64 U	0.2 U
CHROMIUM	1,100	50 ⁽²⁾	2.4 U/2.4 U	2.4 U/2.4 U	2.4 U	1 U	0.8 U
COPPER	480	2.4 ⁽²⁾	4.4 J/1.9 J	1.4 UJ/3.1	3.4	5 U	4.2 U
LEAD	130	8.1 ⁽²⁾	1.0 U/1.0 U	1.0 U/1.0 U	1.7 U	2.7 U	2.1 UJ
SILVER	120	1.9 ⁽²⁾	2.2 U/2.2 U	2.2 U/2.2 U	1.3 U	1.1 UJ	0.9 U
ZINC	1,230	81 ⁽²⁾	13.0 U/1.8 U	14.1 U/21.3 U	92.4	77.4	32.6

NOTES:

Bold numbers denote exceedance of secondary monitoring criterion. There are no exceedances of the primary monitoring criteria.

- 1 Surface Water Protection Criteria for substances in groundwater, using a site-specific dilution factor of 100.
 - 2 Federal Ambient Water Quality Criteria for protection of aquatic life (chronic, saltwater).
 - 3 Connecticut Water Quality Criteria for protection of aquatic life (chronic, saltwater).
 - 4 Federal Ambient Water Quality Criteria for protection of human health from consumption of organisms.
 - 5 Connecticut Water Quality Criteria for protection of human health from consumption of organisms.
- J Estimated value
R Rejected
U Undetected
NA Not available

TABLE 6-3

**CHEMICAL SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, ADVISORIES, AND GUIDANCE
SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT**

Requirement	Citation	Synopsis of Requirements	Current Status / Applicability
FEDERAL			
There are no federal chemical-specific ARARs			
STATE OF CONNECTICUT			
There are no state chemical-specific ARARs			

TABLE 6-4

**LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, ADVISORIES, AND GUIDANCE
SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT**

Requirement	Citation	Synopsis of Requirement	Current Status / Applicability
FEDERAL			
Executive Order 11988 RE: Floodplain Management	Executive Order 11988	This order required Federal agencies, wherever possible, to avoid or minimize adverse impacts upon floodplains. Requires reduction of risk of flood loss, minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values of the floodplains.	This regulation was addressed during monitoring well installation within the 100-year floodplain. Now that monitoring well installation is complete, this regulation is no longer applicable.
Coastal Zone Management Act	16 USC Parts 1451 <i>et seq.</i>	Requires that any actions must be conducted in a manner consistent with state approved management programs.	This site is located in a state coastal flood zone (within the 100-year floodplain). Therefore, applicable state coastal zone management requirements were considered during determination of the selected remedy. Now that the remedy has been selected, this act is no longer applicable.
Fish and Wildlife Coordination Act	16 USC 661 <i>et seq.</i> ; 40 CFR § 6.302	Requires action to be taken to protect fish and wildlife from projects affecting streams or rivers. Consultation with U.S. Fish & Wildlife Service to develop measures to prevent and mitigate loss.	This regulation was addressed during monitoring well installation within the river's tidal zone. Now that monitoring well installation is complete, this act is no longer applicable.
STATE OF CONNECTICUT			
Coastal Management Act	CGS §§ 22a-92 and 94	Requires projects within a state designated coastal zone to minimize adverse impacts on natural coastal resources.	This regulation was addressed during monitoring well installation within the 100-year floodplain. Now that monitoring well installation is complete, this act is no longer applicable.
Tidal Wetlands	RCSA §§ 22a-30-1 thru 17	Activities within or affecting tidal wetlands are regulated.	This regulation was addressed during monitoring well installation within the river's tidal zone. Now that monitoring well installation is complete, this regulation is no longer applicable.
CT Endangered Species Act	CGS §§ 26-303 thru 314	Regulates activities affecting state-listed endangered or threatened species or their critical habitat.	The state-threatened Atlantic sturgeon inhabits the Thames River. Because monitoring wells were installed in the river's tidal zone, protection of the Atlantic Sturgeon's habitat was considered during installation. Now the monitoring well installation is complete, this act is no longer applicable.

TABLE 6-5

**ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, ADVISORIES, AND GUIDANCE
SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE
NAVAL SUBMARINE BASE NEW LONDON
GROTON, CONNECTICUT**

Requirement	Citation	Synopsis of Requirement	Current Status / Applicability
FEDERAL			
Guidance on Remedial Actions for Superfund Sites with PCB Contamination	OSWER Directive 9355.4-01	This guidance describes how to address PCB contamination issues.	Low levels of PCBs (47.2 ppm or less) are present within soils at the site. The land use (industrial) was selected in accordance with these regulations. No change in land use is expected.
STATE OF CONNECTICUT			
Hazardous Waste Management: Generator and Handler Requirements	RCSA § 22a-449 (c) 100-101	These sections establish standards for listing and identification of hazardous waste. The standards of 40 CFR 260-261 are incorporated by reference.	This regulation was addressed during monitoring well installation. Now that well installation has been completed, this requirement is no longer applicable.
Hazardous Waste Management: TSDF Standards	RCSA § 22a-449 (c) 104	This section establishes standards for groundwater monitoring and post-closure. The standards of 40 CFR 264 are incorporated by reference.	The remedy complies with the post-closure requirements of this section through groundwater monitoring and institutional controls at the Site.
Control of Noise Regulations	RCSA § 22a-69-1 through 7.4	These regulations establish allowable noise levels. Noise levels from construction activities are exempt from these requirements.	This regulation was addressed during monitoring well installation. Now that well installation has been completed, this requirement is no longer applicable.
Guidelines for Soil Erosion and Sediment Control	The Connecticut Council on Soil and Water Conservation	The guidelines provide technical and administrative guidance for the development, adoption, and implementation of erosion and sediment control program.	These guidelines were addressed during monitoring well installation. Now that well installation has been completed, this requirement is no longer applicable.
Water Quality Standards	CBS 22a-426	Connecticut's Water Quality Standards establish specific numeric criteria, designated uses, and anti-degradation policies for groundwater and surface water.	The lower of the Federal Ambient Water Quality Criteria and the CT Water Quality Standards are being used as secondary monitoring criteria to evaluate monitoring results and determine if further remedial action is required to protect resources. The CT WQS were last updated in April 1997. This is discussed in Section 6.5 and a comparison of new and old criteria is presented in Table 6-6. The changes in the WQS do not impact the protectiveness of the remedy.
Remediation Standards Regulations	RCSA § 22a-133k-3	These regulations provide specific numeric cleanup criteria for a wide variety of contaminants in soil, groundwater and soil vapor. These criteria include volatilization criteria, pollutant mobility criteria, direct exposure criteria and surface water protection criteria.	Although no groundwater plume has been identified at this site, groundwater monitoring is being conducted to determine if any contaminants of concern are migrating offsite at levels above CTDEP surface water protection or volatilization standards for GB groundwater. Maintenance of the cap and institutional controls will satisfy the Remediation Standards Regulations for soil. The CT Surface Water Protection Criteria were updated in April 1999, but the SWPC for chemicals of concern at the DRMO have not changed.

TABLE 6-6

**COMPARISON OF CRITERIA
NSB-NLON, GROTON, CONNECTICUT**

Chemical	Federal AWQCs ⁽¹⁾				CTDEP WQSS ⁽²⁾			
	Aquatic Life ⁽³⁾		Human Health ⁽⁴⁾		Aquatic Life ⁽⁵⁾		Human Health ⁽⁴⁾	
	1986	April 1999	1986	April 1999	May, 1992	April 1997	May, 1992	April 1997
VOCs (mg/L)								
1,1,2,2-TETRACHLOROETHANE	NA	NA	11	11	NA	NA	11	11
1,2-DICHLOROETHANE	NA	NA	99	99	NA	NA	99	99
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	81	81	NA	NA	81	81
VINYL CHLORIDE	NA	NA	525	525	NA	NA	525	525
SVOCs (mg/L)								
BENZO(A)ANTHRACENE	NA	NA	0.0311	0.049	NA	NA	0.031	0.031
BENZO(A)PYRENE	NA	NA	0.0311	0.049	NA	NA	0.031	0.031
BENZO(B)FLUORANTHENE	NA	NA	0.0311	0.049	NA	NA	0.031	0.031
BENZO(K)FLUORANTHENE	NA	NA	0.0311	0.049	NA	NA	0.031	0.031
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	5.9	5.9	NA	NA	5.9	5.9
FLUORANTHENE	NA	NA	370	370	NA	NA	370	370
FLUORENE	NA	NA	14000	14000	NA	NA	14,000	14,000
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	0.031	0.031
PYRENE	NA	NA	11000	11000	NA	NA	11,000	11,000
Pesticides/PCBs (mg/L)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	0.00084	0.00084
AROCLOR-1254	0.03	0.03	0.000045	0.00017	0.03	0.03	0.000045	0.00017
AROCLOR-1260	0.03	0.03	0.000045	0.00017	0.03	0.03	0.000045	0.00017
HEPTACHLOR EPOXIDE	0.0036	0.0036	0.00011	0.00011	0.0008	0.0036	0.00011	0.00011
Inorganics (total/dissolved) (mg/L)								
ARSENIC	36	36	0.14	0.14	36	36	0.14	0.14
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	9.3	9.3	NA	NA	9.3	9.3	170	170
CHROMIUM	50	50	NA	NA	50	50	3400	3400
COPPER	2.4	3.1	NA	NA	2.9	2.4	NA	NA
LEAD	8.1	8.1	NA	NA	8.5	8.1	NA	NA
SILVER	1.9 ⁽⁶⁾	1.9 ⁽⁶⁾	NA	NA	2.3 ⁽⁷⁾	1.96 ⁽⁷⁾	65000	65000
ZINC	81	81	NA	69000	86	81	NA	NA

Notes:

NA - Not available.

1 - Ambient Water Quality Criteria.

2 - Water Quality Standards.

3 - Criterion for saltwater at a continous concentration.

4 - Criterion for consumption of organisms only.

5 - Criterion for saltwater at a chronic concentration.

6 - Criterion for saltwater at a maximum concentration.

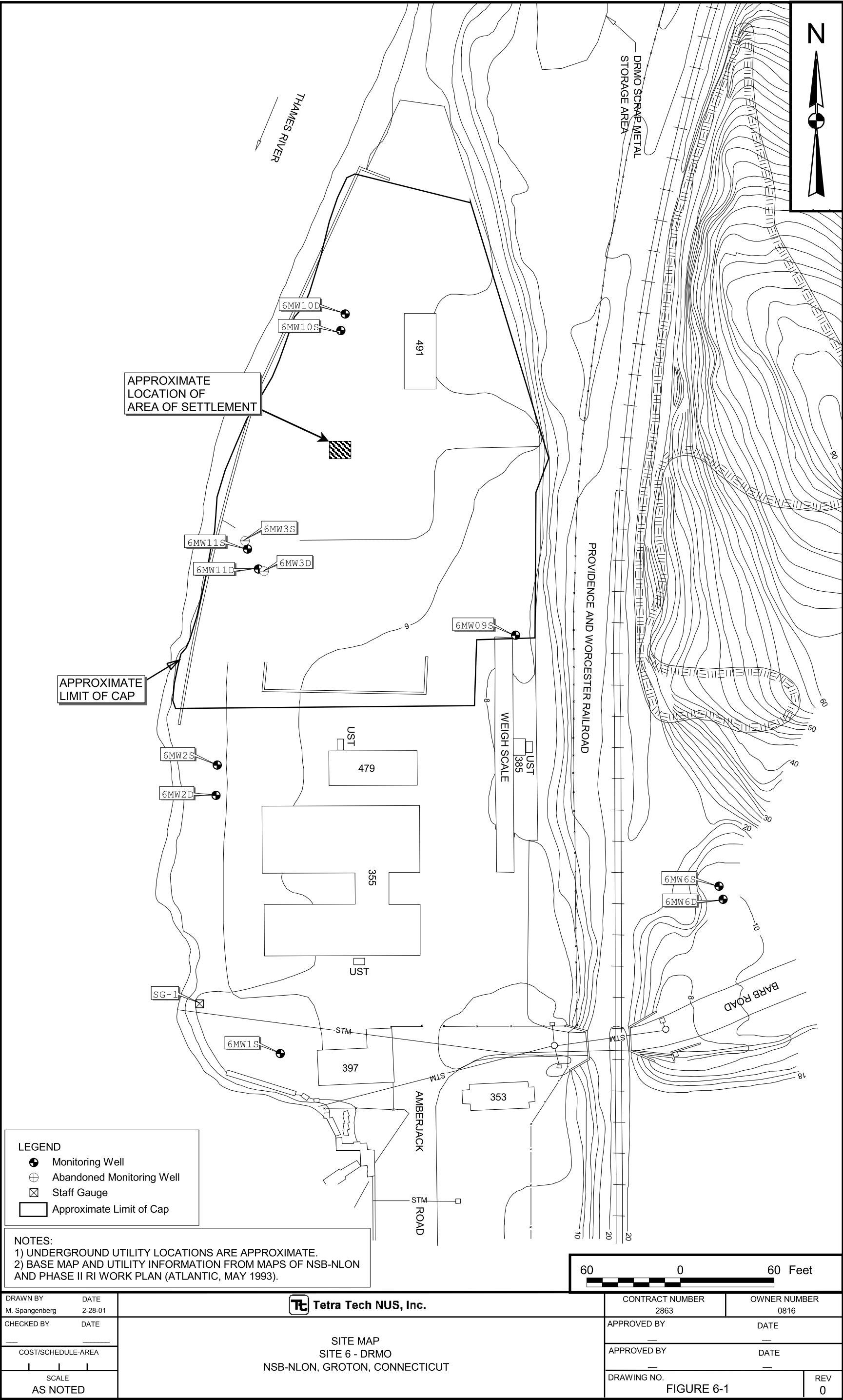
7 - Criterion for saltwater at an acute concentration.

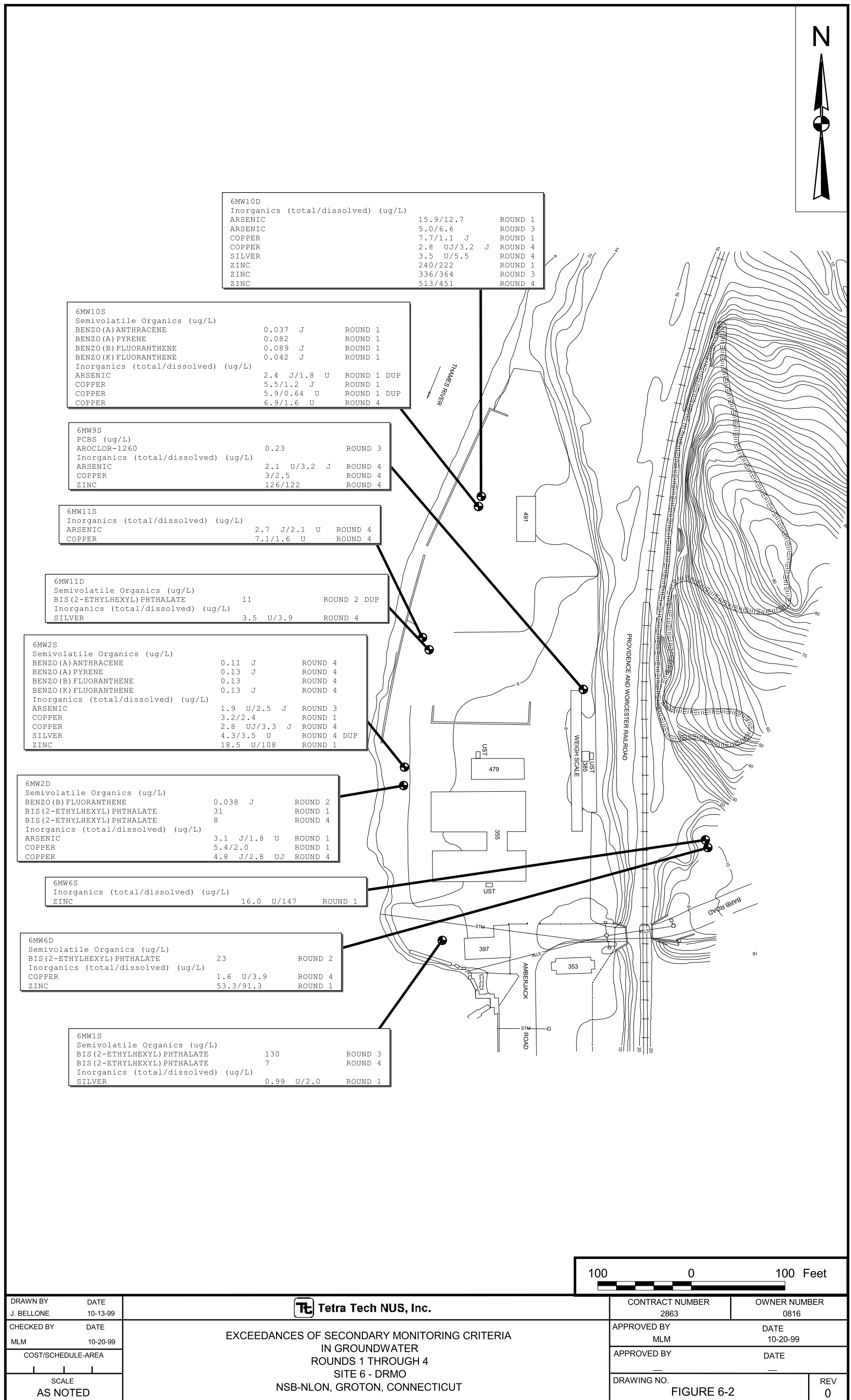
Shading indicates that the criteria has changed.


TABLE 6-7

SITE 6 DEFICIENCIES
NSB-NLON, GROTON, CONNECTICUT

Deficiency	Effects Protectiveness	
	Current	Future
Area of possible settlement	N	Y
Maintenance of monitoring wells and dedicated sampling equipment	N	N





DRAWN BY J. LAMEY	DATE 8-24-00	 Tetra Tech NUS, Inc.	CONTRACT NUMBER 2863	OWNER NUMBER 0816
CHECKED BY MLM	DATE 10-18-00		APPROVED BY MLM	DATE 10-17-00
COST/SCHEDULE-AREA			APPROVED BY —	DATE —
SCALE AS NOTED			DRAWING NO. FIGURE 6-3	REV 0